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A COLLECTING TRIP THROUGH THE CASCADE MOUNTAINS.

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From the old Hudson's Bay post of Fort Hope, on the Fraser River, ninety miles from Vancouver, a trail crosses the Cascade Range, locally known as the Hope Mountains, to the mining town of Princeton on the Similkameen, a distance of sixty-five miles. Our collecting trip over this trail occupied from July 10-28 of this year, and it was most interesting to note the change from the fauna of the damp coast to that of the dry belt, the two being separated by a strictly alpine fauna, confined to the highest point of the route (5,800 feet).

The Hope trail first ascends a small creek, known as the Nicolum River; the vegetation here is very luxuriant. At the upper part of this valley we met with several species common on Vancouver Island, but not on the adjoining coast. After crossing a high ridge the route descends the Samallow, a tributary of the Skagit, and for some miles ascends the course of the latter stream. Here the first change is noticeable in the trees, hemlock and cedar giving place to balsam-fir and yew, with large cotton-woods and aspen poplars.

Turning again, the trail leaves the Skagit and ascends Skagit Creek. A large part of the journey here lies through open areas where the timber has been burnt. Near the head of this creek the pine comes into evidence, and the timber continues, though of small size, until close up to the summit itself.

This summit is an open plateau, thickly clothed with flowers:—yellow daisies, blue lupines and scarlet Castilleias, and afforded the best collecting ground of the whole trip. On the other side the trail descends Whipsaw Creek, through a forest almost wholly of pine, to within nine miles of Princeton. This last stretch was a comparatively level range of bunch-grass, interspersed with tall pines, but having fewer flowers and fewer insects.

We recorded in all fifty-four species of butterflies, most of which are mentioned in the following list:—

Parnassius clodius was common in all the open glades along the Nicolum, and along the trail as far as Skaist Creek. At the Summit it was replaced by **P. smintheus,** but neither species was met with upon the eastern slope.

Papilios were not common; the ordinary coast species, **P. rutulus** and **P. eurymedon** were occasionally seen as far as the Skagit, none beyond.

Of the Whites, **Pontia rapae** was taken on the Nicolum, and **P. pallida** as far as the Samallow. **Synchloe ausonides** and **S. sara, var. reakirtii** occured near the Summit. Two species of Eurymus were taken on Whipsaw Creek and about Princeton; one of them seems to be **E. emilia.**

Argynnids were abundant; **A. electa** turned up a few miles beyond the Nicolum; it haunted about a mile of the trail and then disappeared altogether. **A. rhodope** was captured only near the Summit, **A. leto** in some numbers at a creek nine miles south of Princeton, and **A. eurynome,** with an unsilvered variety (A. clio?) was very abundant east of the Summit, rising in clouds from every damp spot on the trail. In the Similkameen valley occurs another Argynnis resembling **A. bremnerii,** but which, when the writer took it at Vernon two years ago, was declared by Dr. Skinner to be an undescribed species.

B. epithore occurred nearly everywhere, and **B. chariclea** at the Summit and beyond.

Several specimens of **Lemonias palla** were taken on both sides of the divide, and another species with it, as yet undetermined, but resembling **L. cooperi.**

On our return journey we found **Vanessa californica** very common on the Samallow. A few **V. cardui** were seen, and **Basilarchia lorquinii** everywhere except on the actual Summit.

On the far side of the divide we found **Oeneis chryxus** in some numbers; **Cercyonis charon** very abundant in the Similkameen, while **Coenonympha ampelos** was common on the upper Whipsaw—larger and brighter specimens than those we take at Victoria.

Thecla californica and **T. saepium** were recorded at fairly high elevations on both sides of the mountains. **Epidemia mariposa** was common nearly everywhere beyond the upper Nicolum, while **E. helloides** was not nearly so abundant.

Of the Blues—one specimen of **Cupido heteronea** was taken at Princeton; **N. antiacis** occurred at the Summit with **Agriades aquilo**; but the commonest blues were **Cupido ardea** and **Rusticus anna** (?).

Among the Hesperiidae we noted **Amblyscirtes vialis, Pamphila palaemon, Euphyes metacomet. Thanaos persius,** and a single specimen of **Hesperia caespitalis** at the Summit.

We hope at a later date to be able to give some account of the Moths taken on this interesting trip.

NOTES ON THE SEASON OF 1906.

VANCOUVER.—May and the first half of June were unusually wet, but July was very dry. No very notable records have come to hand in the Lepidoptera; the best captures in the Noctuidae were **Autographa mappa,** June 13, and **Rhynchagrotis gilvipennis,** Lulu Island, June 22.

Mr. Harvey received from a friend a fine specimen of **Aemilia roseata,** taken early in July on the Squamish River. R. Draper took **Hepialus hyperboreus, Euchalcia putnami** and **Autographa epigaea** on August 31st.

Among the Geometridae **Callizia amorata** was seen on July 2; (Harvey).

In Coleoptera Mr. Harvey records:— **Corymbites aeripennis,** June 13; **Asaphes morio,** July 8; **Lina scripta,** Squamish, July 21; **Cephaloon lepturides,** June 24.

The following Diptera were captured by Mr. Harvey:—**Lasiophthicus pyrastri,** April 7; **Criorhina scitula,** June 1; **Tabanus comastes (captonis),** June 1; **Sargus decorus,** Aug. 10.

KASLO.—Mr. Cockle sends the following notes:—The summer has been uneventful and sugaring was no use owing to the dryness of the evenings. All important captures recorded were made at light.

Eurymus emilia, one male, Aug. 19, a new record for Kootenay Lake; **Sphinx vancouverensis,** and **S. drupiferarum,** both bred.; **Apantesis ornata,** two females, June 12-25; (only one true ornata previously taken but vars. achaia and ochracea usually plentiful); **Platyperigea praeacuta,** July 21; **P. anotha,** 2 specimens, Aug. 15-19; **Hadena lignicolor,** July 18, first record for Kootenay; **Oncocnemis barnesii,** female, Aug. 19, the third specimen known; type from Yellowstone Park; **Noctua fennica,** plentiful at light; **Chorizagrotis auxiliaris,** Aug. 10-15; **C. balanitis,** Aug. 19; **Euxoa plagigera,** May 29; **E. terrenus,** 4 specimens, July 2- to Aug. 10; **Scotogramma densa,** Aug. 1; **Heliophila unipuncta,** July 16, second record for Kaslo; **Cucullia postera,** June 3, July 21; **Plusia aereoides,** July 17; **Autographa mappa,** July 10; **Odontosia elegans,** July 3-13; **Cerura scolopendrina,** June 21 to July 16; **Gluphisia septentrionalis,** July 8-16; and in Geometridae, **Sciagraphia continuata,** var. **atrifasciata,** June 30; **Synchlora rubrifrontaria,** Aug. 19.

VERNON.—Mr. Venables records taking **Eudamus pylades,** May 23rd, **Cupido sagittera** and **C. heteronea** on April 20th. Among Coleoptera, Mr. Bush took **Epicauta maculata** on goldenrod, July 19, and **Nemognatha apicalis** and **Chrysomela elegans** on the same date.

FIELD.—Mr. Bush collected in this neighborhood on July 25-26, and took **Agriades aquilo, Argynnis electa, A. eurynome, A. clio,** and a fine specimen of **Sthenopis quadriguttatus,** July 26. Also **Chrysotoxum derivatum** (Syrphide).

REVELSTOKE.—**Caripeta aequaliaria,** July 22, (Bush).

SICAMOUS.—**Noctua oblata,** July 21, (Bush).

KAMLOOPS.—A. Bombyliid, **Spogostylum analis,** July 17, (Bush); also from Nelson in 1904.

INSECT PESTS AT KASLO IN 1906.

The following report comes to us from Mr. J. W. Cockle:—

"The summer has been notable for the absence of most of the usual pests affecting agriculture. No "Peridroma" were in evidence. **Euxoa ochrogaster** was scarce, and no damage was reported from any of the usual cutworms. The only exception was the prevalence of Pear-leaf Blister Mite, which on neglected trees proved most destructive, completely destroying the foliage, and also attacking the fruit. A note on the prevalence, and preventive measures to be adopted will be published by the Department of Fruits, Ottawa, in the crop reports.

Much damage was caused to the foliage of **Populus tremuloides** by the leaf-miner **Lithocolletes populiella Clem.,** but as these only mature late in the season, it does not affect the growth of the tree.

Lyonetia speculella Clem. is gaining ground in the apple-trees. This insect, which mines the Ceanothus, is gradually acquiring the apple-habit, and as the wild brush is cleared out to make room for apple orchards it has naturally been compelled to change its food-plant. It is double-brooded, and its ravages on the wild ceanothus often result in the complete denudation of the leaves of that plant.

THERINA SOMNIARIA AT VICTORIA

This Geometrid moth, only too well known under the name of the "Oak-Looper," has again been extremely destructive to the oak trees all round Victoria.

The Report of the Entomologist and Botanist, Dr. J. Fletcher, for last year, when the moth was equally abundant, has the following remarks on the species, which we venture to quote:—"We observed one instance where the larvae, after having stripped the oak-trees, had spread for a short distance into a grove of Western Hemlock, Spruce and Douglas Fir, the leaves of which had to some extent been eaten by them. Mr. Taylor considers it probable that **T. somniaria** of Hulst is a variety of **T. fiscellaria** of Guenee. He says that fiscellaria and somniaria feed as larvae on deciduous trees, while true fervidaria feed on conifers."

It is interesting to note that this same moth occurs, though in comparatively small numbers, in the neighborhood of Vancouver at the same season as it appears on the island; yet there are no oaks at all in the district referred to, and the moth is supposed to feed on the Hemlock.

CORRECTIONS.

On page two of our last issue the name "quadrimaculatus," three lines from the foot of the page, should read "quadriguttatus."

With reference to the statement on the same page concerning the distribution of Parnassius clodius, we have received records of its occurrence in two other places east of Cheam; it is taken all up the Fraser valley as far as Lytton, and a single small male specimen has been taken as far east as Nelson.

NEW GEOMETRIDAE FROM B. C.

The following new species of Geometridae of British Columbia are characterized in a paper read at the last meeting of the Royal Society of Canada by the Rev. G. W. Taylor:—

Eupithecia olivacea ..... Wellington and Vancouver.
harveyata ..... Vancouver.
dyarata ..... Kaslo.
hanhami ..... Victoria.
bryanti ..... Stickeen.
insignificata ..... Wellington.
sublineata ..... Wellington.
modesta ..... Vancouver.
obumbrata ..... Goldstream.
Eucymatoge vancouverata ..... Wellington, Vancouver and (?) Kaslo.
Eustroma harveyata ..... Vancouver and Stickeen.
Zenophleps victoria ..... Victoria.
Hydriomena manzanita ..... Wellington.
Xanthorhoe fossaria ..... Mt. Cheam.
pontiaria ..... Wellington.
Leptomeris subfuscata ..... Victoria, Vernon.
Deilinia bryantaria ..... Stickeen.
Enypia packardata ..... Wellington, Victoria, Kaslo, Mt. Cheam.

All these names will be found entered in the check list of B. C. Lepidoptera recently published by the Provincial Department of Agriculture.

THE BRITISH COLUMBIA LIST.

Odonata.

The Odonata or Dragon-flies are in the adult stage more or less predatory, feeding upon mosquitoes and other small flies. Some species oviposit on the surface of the water, others crawl down reeds and oviposit beneath the water. The larvae are carnivorous, and sluggish in habit, seizing their prey by means of a curiously hinged jaw. The nymph crawls up a stem into the air when the winged adult is ready to emerge. These insects are not markedly either beneficial or injurious to man.

The following list is compiled by Professor Raymond C. Osburn, of the Columbia University, New York; it appeared in the Entomological News for June, 1905.

Family **Agrionidae.**

Lestes congener Hagen ..... Wellington, 1 specimen.
uncatus Kby ..... Kaslo.
forcipatus Ramb ..... Victoria, Langford, Glacier, Kaslo.
Argia vivida Selys ..... Glacier, 1 specimen.
Amphiagrion saucium Bur ..... Victoria.
Enallagma calverti Morse ..... Vancouver, Ainsworth.
cyathigerum Charp ..... Victoria, Shawnigan, Kaslo.
carunculatum Morse ..... Victoria, Renfrew, Agassiz, Kaslo.
Ischnura erratica Calv ..... Vancouver, Langford.
perparva Selys ..... Victoria, Langford.
cervula Selys ..... Victoria, Shawnigan, Agassiz, Kaslo.

Family Cordulegasteridae.
- Cordulegaster dorsalis Hagen — Vancouver.

Family Aeschnidae.
- Aeschna juncea Linn — Kaslo, 1 specimen.
- californica Calv. — Victoria, Langford.
- multicolor Hagen — Victoria, Langford, Kaslo.
- constricta Say — Shawnigan, Wellington.

Family Cordulidae.
- Tetragoneuria spinigera Selys. — Victoria, Langford, Goldstream.
- Somatochlora semicircularis Selys. — Langford, Glacier, Ainsworth.
- forcipata Scud — Renfrew, 1 specimen.
- Cordulia shurtleffi Scud — Kaslo.

Family Libellulidae.
- Leucorhinia hudsonica Selys — Vancouver, Kaslo, Ainsworth.
- proxima Calv. — Kaslo.
- Sympetrum rubicundum Say
- var assimilatum Uhl — Harrison R., Kaslo.
- obtrusum Hagen — Victoria, Langford, Kaslo.
- pallipes Hagen — Langford.
- vicinum Hagen — Langford, Wellington.
- semicinctum Say — Langford, Kaslo.
- costiferum Hagen — Victoria, Langford, Kaslo.
- madidum Hagen — Victoria, Shawnigan, Kaslo.
- illotum Hagen — Victoria, Shawnigan.
- corruptum Hagen — Kaslo.
- Mesothemis simplicicollis Say
- var collocata Hagen — Victoria, Langford.
- Ladona julia Uhler — Langford, Shawnigan.
- Libellula quadrimaculata Linn — Victoria, Shawnigan, Vancouver, Kaslo.
- forensis Hagen — Victoria, Shawnigan, Vancouver, Kaslo.
- Plathemis lydia Drury — Victoria, Vancouver.
- Pachydiplax longipennis Burm — Victoria, (recorded by Hagen).

THE BRITISH COLUMBIA LIST.

DIPTERA—Family Tabanidae.

The Tabanidae or Horseflies occasionally prove serious pests to stock, and sometimes even to man. The mouth-parts consist of a series of fine sharp-pointed lancets, so rigid that they readily pierce the skin, lying in a soft fleshy labella. The female alone sucks blood, the male lives on the pollen or nectar, as is the case with the mosquitoes. The larvae are carnivorous, living in water or marshy soil.

The following is adapted from a paper, "Tabanidae of the Western United States and Canada," by Professor J. S. Hine, of the Ohio State University, who has helped us greatly in our studies of this order; it appeared in December, 1904:

Pangonia Latr.
- fera Will — Mt. Cheam.

Chrysops Meig.
- excitans Walk — Vancouver, Goldstream, Hope Mts.
- mitis O. S. — Vernon.
- noctifer O. S. — generally distributed.
- proclivis O. S. — Victoria, Shawnigan, Vancouver, Grouse Mt.

Silvius Meig.
- gigantulus Loew — generally distributed.

Tabanus Linn.
- aegrotus O. S. — Victoria, Goldstream, Wellington.
- affinis Kby — Victoria, Wellington.
- captonis Marten — Goldstream, Mt. Arrowsmith, Grouse Mt., Hope Mts., Cheam.
- fratellus Will — Victoria, Renfrew, Mission, Hope Mts.
- osburni Hine — Cheam Mt., Hope Mts.
- phaenops O. S. — "From B. C." (Hine).
- insuetus O. S. — Vernon.
- epistatus O. S. — Vernon.
- punctifer O. S. — Vernon.
- septentrionalis Loew — Vancouver (?), Vernon.
- sequax Will — Grouse Mt., Cheam Mt., Similkameen, Glacier.
- sonomensis O. S. — Renfrew, Mt. Arrowsmith, Vancouver.

Note:—The species recorded from Vernon only are not contained in the paper of Prof. Hine, and were named by other authorities.